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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/523,267      | 01/31/2005  | Tohru Ishizuya       | 4641-70412-01       | 1135             |

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EXAMINER

CHIU, TSZ K

ART UNIT PAPER NUMBER

2822

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                        |  |                     |  |
|------------------------------|------------------------|--|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> |  | <b>Applicant(s)</b> |  |
|                              | 10/523,267             |  | ISHIZUYA, TOHRU     |  |
|                              | <b>Examiner</b>        |  | <b>Art Unit</b>     |  |
|                              | Tsz K. Chiu            |  | 2822                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 31 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/29/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (6,136,390) in view of Takeda (Japan PUB 08-195387).

With respect to claim 1, Park discloses a substrate (312, For example Fig. 2L); and three-dimensional structures (For example Fig. 2L) arranged in a predetermined effective area on the substrate, wherein the three-dimensional structures have space portions (see drawing below), which are formed by removing a sacrificial layer (340, For example Fig. 2K), between the three-dimensional structures and the substrate but did not disclose a dummy area is arranged to surround the effective area, dummy structures are arranged in the dummy area, and the dummy structures have space portions, which are formed by removing a sacrificial layer, between the dummy structures and the substrate.

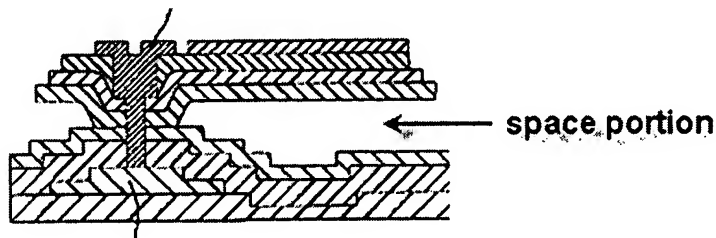
Takeda discloses a dummy area (5, For example drawing 1) is arranged to surround the effective area (4, For example drawing 1), dummy structures are arranged in the dummy area (5, For example drawing 1), and the dummy structures have space portions (31, For example drawing 1), which are formed by

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removing a sacrificial layer, between the dummy structures (5, For example drawing 1) and the substrate (1, For example drawing 1).

Since Park and Takeda are both from the same field of endeavor semiconductor integrated circuit device, the purpose disclosed by Takeda would have been recognized in the pertinent art of Park.

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have use Takeda dummy structure in Park for the purpose of protecting the inside structure from dry etching or other heating process.



With respect to claim 2, Takeda discloses a portion of the dummy structures (5, For example drawing 1) opposed to the substrate is formed in a same shape (a square shape) as the three-dimensional structures (4, For example drawing 1).

With respect to claim 3, Takeda discloses the dummy structures have columns (columns near left and right edge of the substrate drawing 1) for fixing at least one section thereof to the substrate.

With respect to claim 4, Takeda discloses the dummy structures (5, For example drawing 1) have a thin film (8, For example drawing 1) covering the

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dummy area and plural columns arranged between the thin film and the substrate.

With respect to claim 5, Park discloses an optical waveguide substrate (312, For example Fig. 2L); and a three-dimensional element substrate including displaceable reflecting mirrors (301, For example Fig. 2L), wherein the three-dimensional structure element substrate (310, For example Fig. 2L) has a substrate (312, For example Fig. 2L) and three-dimensional structures arranged in a predetermined effective area on the substrate (312, For example Fig. 2L), the three-dimensional structures include the reflecting mirrors (395, For example Fig. 2K) and displacement portions (385, For example Fig. 2K) on which the reflecting mirrors (395, For example Fig. 2K) are placed, and the displacement portions (385, For example Fig. 2K) have space portions (see drawing above in claim 1), which are formed by removing a sacrificial layer (340, For example Fig. 2K), between the displacement portions and the substrate but did not disclose a dummy area is arranged to surround the effective area, dummy structures are arranged in the dummy area, and the dummy structures have space portions, which are formed by removing a sacrificial layer, between the dummy structures and the substrate.

Takeda discloses a dummy area (5, For example drawing 1) is arranged to surround the effective area (4, For example drawing 1), dummy structures are arranged in the dummy area (5, For example drawing 1), and the dummy structures have space portions (31, For example drawing 1), which are formed by

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removing a sacrificial layer, between the dummy structures (5, For example drawing 1) and the substrate (1, For example drawing 1).

Since Park and Takeda are both from the same field of endeavor semiconductor integrated circuit device, the purpose disclosed by Takeda would have been recognized in the pertinent art of Park.

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have use Takeda dummy structure in Park for the purpose of protecting the inside structure from dry etching or other heating process.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by Patel et al. (6,969,635).

With respect to claim 6, Patel discloses displaceable thin film three-dimensional structures (2, For example Fig. 1E), wherein the micro device has a substrate and the thin film three-dimensional structures arranged in a

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predetermined effective area (3, For example Fig. 8) on the substrate (5, For example Fig. 8), the thin film three-dimensional structures have space portions (see drawing below), which are formed by removing a sacrificial layer (14, For example Fig. 1B), between the thin film three-dimensional structures and the substrate, and on the substrate (5, For example Fig. 9A), a dummy area (3a-3d, For example Fig. 9A) is arranged to surround the effective area, dummy structures made of a thin film are arranged in the dummy area (3a-3d, For example Fig. 9A), and the dummy structures have space portions (between reference number 6), which are formed by removing a sacrificial layer, between the dummy structures and the substrate.

Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated Yagi (5,994,750)

With respect to claim 7, Yagi discloses a step of forming a sacrificial layer (26, For example Fig. 1C) and predetermined thin film three-dimensional structures (For example Fig. 3) in a predetermined effective area on a substrate and forming a sacrificial layer and predetermined thin film dummy structures in a dummy area surrounding the effective area; and a step of removing the sacrificial layers (26, For example Fig. 1C) in the effective area and the dummy area with a dry process (column 1, lines 56-65).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tsz K. Chiu whose telephone number is 517-272-8656. The examiner can normally be reached on 0800 to 1700.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra V. Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
ZANDRA V. SMITH  
SUPERVISORY PATENT EXAMINER

8 January 2006

TKC  
January 3, 2006